Page 1

Figure 1

|  |  |
| --- | --- |
| Clips | תפסי אחיזה |
| Bridge | גשר |
| Clip tab | לשונית אחיזה |
| Gasket | אטם |

Page 2

Figure 2

|  |  |
| --- | --- |
| Clips | תפסי אחיזה |
| Gasket spine | שדרת אטם |
|  |  |
|  |  |

Figure 3

|  |  |
| --- | --- |
| Clips | תפסי אחיזה |
|  |  |
|  |  |
|  |  |

Page 3

Figure 10

Gasket/plate locking clip

Single window with locking rim – plate side

1. Window formed by cutting and pulling
2. Contoured upper window
3. Contoured lower window
4. Upper continuous locking rim
5. Lower continuous locking rim
6. Upper perpendicular locking rim
7. Lower perpendicular locking rim

-------------------------------------------------------------------

Figure 11

Gasket/plate locking clip

Gasket structure for locking with a single window

1. Surfaces for gasket insertion-by sliding surfaces by pressure (P) from above
2. Upper continuous confinement rim
3. Upper perpendicular confinement rim
4. Lower continuous confinement rim
5. Lower perpendicular confinement rim
6. Gasket wedge

Page 4

Figure 12

|  |  |
| --- | --- |
| Right | ימין |
| Left | שמאל |
|  |  |
|  |  |

Double locking clip for plate gasket

Two parallel individual windows with locking rim – plate side

1. 1’ – Window formed by cutting / pulling
2. 2’ – Contoured upper window
3. 3’ – Contoured lower window
4. 4’ – Upper continuous locking rim
5. 5’ – Lower continuous locking rim
6. 6’ – Upper perpendicular locking rim
7. 7’ – Lower perpendicular locking rim

Page 5

Figure 13

Double locking gasket/plate clip

Structure of wedge gasket for locking double parallel window

1. 1’ - Downward gasket sliding plane on pressure (P) from above
2. 2’ – Upper continuous confined rim
3. 3’ – Upper perpendicular confined rim
4. 4’ – Lower continuous confined rim
5. 5’ – Confined flange lower vertical
6. Gasket wedge for two parallel locking windows

Page 6

Figure 17

Lateral direct locking of the gasket spine against a single window and four locking rims

Figure 14

Plate with window and locking rims (and locking surfaces)

For lateral direct locking of the gasket spine

1. Window formed by cutting and pulling
2. Contoured upper window
3. Contoured lower window
4. Upper continuous locking rim
5. Lower continuous locking rim
6. Upper perpendicular locking rim
7. Lower perpendicular locking rim

Page 7

Gasket

Figure 16

1. Sliding plane on pressure (P) from above
2. Upper continuous confinement rim
3. Upper perpendicular confinement rim
4. Lower perpendicular confinement rim
5. Gasket spine for direct lateral locking

--------------------

Figure 15

Plate (and gasket)

2. Upper continuous locking rim

3. Upper perpendicular locking rim

4. Lower perpendicular locking rim

5. Gasket groove

11. Out gasket

12. Side of the plate heat exchanger

Page 8

Figure 19

|  |  |
| --- | --- |
| Gasket | אטם |
| Typical clip | תפס אופיוני |
|  |  |
|  |  |

Page 9

Figure 15

Prior Art

-------------------------------

Figure 20

Locking clip with two locking windows for use with 6 locking rims

1. Left window
2. Right window
3. ------------[NONE - remove]
4. 4’ Left and right upper continuous locking rims
5. 5’ – Left and right lower continuous locking rims
6. 6’ – Left and right upper perpendicular locking rims
7. 7’ – Left and right lower perpendicular locking rims

---------------------------------

Figure 18a

Lateral direct locking of gasket spine against a single window and 4 locking rims

-------------------------

Figure 18c

Single window

Grip on one side used on all four locking rims

Figure 5

----------------------------------------------

Upper perpendicular confined surface

1. Window

2. Gasket

3. Gasket groove

4. Upper window rim

5. Lower continuous window rim

6. Perpendicular window rim

A-A Cross-section

Single grip on one side

Use of three of four possible locking rims

Page 10

Double locking clip

???

Gasket with diagonal wedge

Figure 22

Page 11

Figure 25a

Lateral gripping of the gasket spine

------------------------------

Figure 25 b

-------------------------------

Figure 25c

Page 12

Figure 25d

Page 13

Figure 26a

1. Gasket groove in valley with side walls at peak height or part of it
2. Valley (lower portion) reinforcing and supporting surfaces
3. Geometric protrusions in the plate on the peak plane
4. Gasket clip window
5. Protrusions at peak height for support

|  |  |
| --- | --- |
| Plate | פלטה |
| Gasket | אטם |
| Opening and closing lever | מנוף נעילה ופתיחה |
|  |  |

Gasket (1) with loop (3) clip (2)

-------------------------------------------------------

Figure 26b

1. Gasket spine
2. Loop clip
3. Clip with confinement surfaces above and below

Page 14

Figure 27

|  |  |
| --- | --- |
| Gasket groove | חרוץ לאטם |
| Gasket groove | חרוץ האטם |
|  |  |
|  |  |

Page 15

Figure 28

|  |  |
| --- | --- |
| Plate | פלטה |
| Double clip | תפס כפול |
| Loop | לולאה |
| Gasket spine | שדרת האטם |
| Loop with double clip | לולאה עם תפס כפול |

Page 16

Figure 50

|  |  |
| --- | --- |
| Plate | פלטה |
| Gasket groove | חריץ האטם |
| Shaped window, open below for locking the gasket | חלון צורני פתוח למטה לנעילת האטם |
| Gasket | אטם |
| Concealed clip | תפס מוסתר |
| Gasket loop | לולאת אטם |
| Gasket | אטם |
| Clip | תפס |
| Gasket narrowing | הצרות אטם |

Page 17

Figure 90

Upper die

Lower die

Gasket wedge

-------------------------------

Figure 91

Upper die

Lower die

----------------------------------------------------------------------

1. Angular vertical window roughly on the left
2. Angular vertical window roughly on the right
3. NONE REMOVE
4. 4’ – Upper continuous left and right window rims
5. 5’ – Lower continuous right and left window rims
6. 6’ – Upper perpendicular right and right window rims
7. 7’ – Lower perpendicular right and left window rims

(b) Depth of plate pressure

Page 18

Figure 92

Height of the window can be equal to or less than (b)

|  |  |
| --- | --- |
| [the statement, which Word won’t write the way I want it] is true  Or  holds | מתקיים |
|  |  |
|  |  |

Figure 93

The window can change in its height and width and form

|  |  |
| --- | --- |
| Shaped open window | חלון פתוח צורני |
| Closed window | חלון סגור |
| Opening | פתח |

The window can be closed on all sides, or it can be open on one or more sides and closed on the remaining sides.

Page 19

Figure 23

|  |  |
| --- | --- |
| Plate of a multi-clip gasket with confinement surfaces | פלטה לאטם רב תפסים עם משטרי כליאה |
| Empty spaces in the gasket for extra flexibility for insertion into the locking location | חללים באטם לתוספת גמישות בהכנסה למקום הנעילה |
|  |  |

---------------------------------

Figure 23

|  |  |
| --- | --- |
| Arrows show places above the confinement surfaces and \_\_\_\_\_\_\_\_\_\_\_\_\_ | חוצים מראים מקומות מעל?? משטחי כליאה ו??? |
|  |  |
|  |  |

Page 20

Figure 96

Rounded window with base

1. Perpendicular rounded window on three sides. The fourth side holds the bottom of the window in place.